

10-28-04

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## TRANSMITTAL FORM

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Total Number of Pages in This Submission

288

Application Number	10/829,505
Filing Date	April 22, 2004
First Named Inventor	SHAN X. WANG
Art Unit	1645
Examiner Name	

Attorney Docket Number

12665.0030.NPUS01

### ENCLOSURES (Check all that apply)

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### SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	HOWREY SIMON ARNOLD & WHITE, LLP		
Signature			
Printed name	HEATHER H. FAN		
Date	October 27, 2004	Reg. No.	51,664

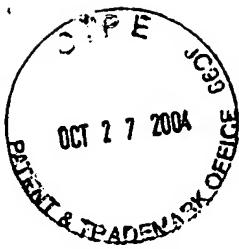
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This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

SHAN X. WANG ET AL.

Serial No.10/829,505

Confirmation No.: 6970

Filed: April 22, 2004

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Group Art Unit: 1645

Examiner:

Att'y Docket: 12665.0030.NPUS01

Client Docket: S00-163

For: MAGNETIC NANOPARTICLES,  
MAGNETIC DETECTOR ARRAYS,  
AND METHODS FOR THEIR USE  
IN DETECTING BIOLOGICAL  
MOLECULES

INFORMATION DISCLOSURE STATEMENT

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Betsy Hilliard

Sir:

In compliance with the duty of disclosure under 37 C.F.R. § 1.56, it is respectfully requested that this Information Disclosure Statement be entered and the documents listed on attached Form PTO-1449 be considered by the Examiner and made of record. Copies of the listed documents required by 37 C.F.R. § 1.98(a)(2) are enclosed for the convenience of the Examiner.

In accordance with 37 C.F.R. §§ 1.97(g), (h), this Information Disclosure Statement is not to be construed as a representation that a search has been made, and is not to be construed to

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be an admission that the information cited is, or is considered to be, material to patentability as defined in 37 C.F.R. § 1.56(b).

The present Information Disclosure Statement is being filed prior to the receipt of a first Official Action reflecting an examination on the merits, and hence is believed to be timely filed in accordance with 37 C.F.R. § 1.97(b). No fees are believed to be due in connection with the filing of this Information Disclosure Statement, however, should any fees under 37 C.F.R. §§ 1.16 to 1.21 be deemed necessary for any reason relating to this document, the Commissioner is hereby authorized to deduct the fees from Howrey Simon Arnold & White, LLP Deposit Account 08-3038 referencing docket number 12665.0030.NPUS01.

Applicant respectfully requests that the listed documents be made of record in the present case.

Respectfully submitted,

Heather H. Fan

Date: October 27, 2004

Heather H. Fan (Reg. No. 51,664)  
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Form PTO-1449 (modified)

Atty. Docket No.  
12665.0030.NPUS01Serial No.  
10/829,505List of Patents and Publications for Applicant's  
INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

Applicant  
Shan X. Wang et al.Filing Date:  
April 22, 2004Group:  
1645

## U.S. Patent Documents

See Page 1

## Foreign Patent Documents

## Other Art

See Page 2

## U.S. Patent Documents

Exam. Init.	Ref. Des.	Document Number	Date	Name	Class	Sub Class	Filing date of App.
	A1	5,981,297	11/09/99	Baselt	436	514	02/05/97
	A2	2002/0060565 A1	05/23/02	Tondra	324	260	03/05/01
	A3	6,582,921 B2	06/24/03	Mirkin et al.	435	6	09/20/01
	A4						
	A5						
	A6						
	A7						
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	A9						
	A10						
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INFORMATION DISCLOSURE STATEMENT — PTO-1449 (MODIFIED)

Form PTO-1449 (modified)		Atty. Docket No. 12665.0030.NPUS01	Serial No. 10/829,505
List of Patents and Publications for Applicant's INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)		Applicant Shan X. Wang et al.	
		Filing Date: April 22, 2004	Group: 1645
U.S. Patent Documents <i>See Page 1</i>	Foreign Patent Documents	Other Art <i>See Page 2</i>	

### Other Art (Including Author, Title, Date, Pertinent Pages, Etc.)

Exam. Init.	Ref. Des.	Citation
	C1	Baselt, D.R., et al.; "A Biosensor Based on Magnetoresistance Technology," <i>Biosensors and Bioelectronics</i> , Vol. 13, Issues 7-8, October 1998, pp 731-739
	C2	Miller, M. M., et al.; "A DNA Array Sensor Utilizing Magnetic Microbeads and Magnetoelectronic Detection," <i>Journal of Magnetism and Magnetic Materials</i> ; 225, pp 138-144 (2001)
	C3	Graham, D. L., et al.; "Single Magnetic Microsphere Placement and Detection on-chip Using Current Line Designs with Integrated Spin Valve Sensors: Biotechnological Applications;" <i>J. Appl. Phys.</i> , 91: 7786 (2002)
	C4	Sun, S.; Murray, C.B.; "Synthesis of Monodisperse Cobalt Nanocrystals and their Assembly into Magnetic Superlattices;" <i>J. Appl. Phys.</i> , 85: 4325 (1990)
	C5	Parkin, S. S. P., et al. "Oscillations in Exchange Coupling and Magnetoresistance in Metallic Superlattice Structures: Co/Ru, Co/Cr, and Fe/Cr;" <i>Phys. Rev. Lett.</i> , 64(19) 2304, (1990)
	C6	Slonczewski, John C., et al.; "Micromagnetics of Laminated Permalloy Films;" <i>IEEE Trans. Magn.</i> , 24(3): pp. 2045-2054; (1998)
	C7	Li, G. et al.; "Detection of Single Micron-Sized Magnetic Bead and Magnetic Nanoparticles Using Spin Valve Sensors for Biological Applications," <i>J. Appl. Phys.</i> , 93(10): pp. 7557-7559 (2003)
	C8	Parkin, S.S.P., et al.; "Exchange-Biased Magnetic Tunnel Junctions and Application to Nonvolatile Magnetic Random Access Memory (Invited); <i>J. Appl. Phys.</i> , 85(8): pp. 5828-5833 (1999)
	C9	van de Veerdonk, R.J.M., et al., "Current Distribution Effects in Magnetoresistive Tunnel Junctions;" <i>Appl. Phys. Lett.</i> , 71 (19): pp. 2839-2841 (1997)
	C10	Li, G., et al.; "Analytical and Micromagnetic Modeling for Detection of a Single Magnetic Microbead or Nanobead by Spin Valve Sensors," <i>IEEE Trans. Magn.</i> , 39 (5): pp. 3313-3315 (2003)
	C11	Thorsen, T., et al., "Microfluidic Large-Scale Integration;" <i>Science</i> , Vol. 298, pp. 580-584 (2002)
	C12	Sun, S., et al.; "Monodisperse MFe <sub>2</sub> O <sub>4</sub> (M = Fe, Co, Mn) Nanoparticles;" <i>IBM T. J. Watson Research Center, Yorktown Heights, NY</i> ; pp. 1-24

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*INFORMATION DISCLOSURE STATEMENT — PTO-1449 (MODIFIED)*

Form PTO-1449 (modified)		Atty. Docket No. 12665.0030.NPUS01	Serial No. 10/829,505
List of Patents and Publications for Applicant's INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)		Applicant Shan X. Wang et al.	
		Filing Date: April 22, 2004	Group: 1645
U.S. Patent Documents <i>See Page 1</i>	Foreign Patent Documents	Other Art <i>See Page 2</i>	

C13	Tehrani, S., et al.; "Recent Developments in Magnetic Tunnel Junction MRAM;" <i>IEEE Trans. Magn.</i> , Vol. 36 (5); pp. 2752-2757, (2000)
C14	Sun, S., et al.; "Polymer Mediated Self-Assembly of Magnetic Nanoparticles;" <i>J. Am. Chem. Soc.</i> , Vol. 124 (12); pp. 2884-2885, (2002)
C15	Sellmyer, D.J., et al; "Handbook of Thin Film Materials;" Edited by: Nalwa, H.S., Stanford Scientific Corporation; <i>Academic Press</i> , Vol. 5; pp 337-374 (2002)
C16	Trademark Electronic Search System (Tess) for "MAGARRAY;" <a href="http://tess2.uspto.gov/bin/showfield?f=doc&amp;state=ut16qp.2.1">http://tess2.uspto.gov/bin/showfield?f=doc&amp;state=ut16qp.2.1</a> ; 09/13/04, 3 pages
C17	C.B. Murray, et al., <i>MRS Bulletin</i> , Vol. 26 (12): pp. 985-991, (2001)
C18	Bozorth, R.M., "Ferromagnetism," D. Van Nostrand Company, Inc. pp. 190-209 (1951)
C19	M. Schena, R.W. Davis, <i>Microarray Biochip Technology</i> , Eaton Publishing, pp. 1-18 (2000)
C20	

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